

APL★PLUS® News

Fall 1989

Volume 3, Number 3

Major Enhancements Included in New APL★PLUS PC Release

New memory management capabilities, numeric editing, a user command processor, and completely new documentation are among the major enhancements that make the newest release of STSC's APL★PLUS System for the PC even more productive and easy to work with. Shipping of Version 9.0 will begin in November. It will be

available directly from STSC in the U.S., and from international dealers outside the U.S.

As with previous releases, STSC surveyed APL★PLUS PC users to determine what enhancements would be the most beneficial. Version 9.0 reflects the suggestions of users around the world.

Memory Magic

Enhancements in Version 9.0 make it possible to load the APL System code into memory outside your 286 and 386 PC's normal 640K DOS region, giving you additional work space — and the chance to build even larger APL applications.

With previous versions of APL★PLUS PC, you could put 64K of code into expanded memory, using an EMS driver. Now, with Version 9.0 and a suitable XMS driver, you can put an additional 64K of the interpreter code into the High Memory Area and another 64K into Upper Memory. (The Standard System can make use of 128K of this memory.) Suitable software drivers include 386MAX™ from Qualitas Inc., and HIMEM.SYS from Microsoft.

Continued on page 2

STSC Announces New Software Support Plan

Providing the expert answers you need — quickly — is the goal of the new Software Support Plan being offered to all users of STSC's microcomputer products. Beginning November 1 in the U.S.A., all current, registered users of the APL★PLUS System for the PC and APL★PLUS II System for the 80386 are eligible to enroll.

It's a known fact that, for many users, the availability of support is a key factor in choosing one software package over another. For the past 18 months, STSC has been working to develop a plan that will respond to your need for expert, professional support. Based on the comments and suggestions of our APL★PLUS users, we've developed a plan specifically designed to meet your support needs. Now, it will be easier than ever to keep current on your software and to get your technical questions answered promptly by STSC's experts.

Do you need help installing and running your software for the first time? Not sure whether your hardware is compatible? Have you encountered an error message you don't understand? However familiar you are with your software, there will be times when you have a problem you can't solve yourself. That's where the Software Support Plan comes in. If you use the latest version of APL★PLUS PC or APL★PLUS II, you are eligible to subscribe.

A brochure with complete details on the new plan is being mailed in October to all registered U.S. users of APL★PLUS PC and APL★PLUS II. (Those outside the U.S. should continue to contact their local dealer for support.) If, after receiving your mailing, you still have questions, call STSC toll-free at 800-592-0050. In Maryland, call 301-984-5123.

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What Else Is New?

A new numeric editing feature allows you to edit numeric matrices just as easily as you now edit functions or character arrays. With the numeric editor you can easily add and delete rows and columns and enter numbers as easily as you can using a spreadsheet.

The new user command processor lets you use utilities as you use system commands, without having them resident in the workspace. You can choose from more than 25 pre-defined commands, or add your own to the system.

More than 1,000 pages of all-new documentation makes APL★PLUS PC even easier to install and use. Documentation has been revised, reorganized, and reformatted, and includes a new *Reference Manual*, a new *User's Manual*, new installation instructions, and an updated *Quick Reference Guide*.

Other enhancements in Version 9.0 include symbol table cleanup, faster loading and copying of workspaces, keystroke help screens in separate files, and new interpreter support interrupts.

Enhanced Standard and Extended Systems

An improved Standard System allows you to switch more easily between the APL and DOS keyboard drivers. A more productive Extended System includes "Point and Edit," a built-in print spooler, and the ability to create function key definitions in a configuration file.

New Printer and Graphics Support

Several new printers are supported with Version 9.0. They are:

- Epson LQ850, LQ1050, FX850, and FX1050
- Toshiba P321SL and P341SL
- HP DeskJet (requires 128K RAM cartridge) and HP DeskJet Plus.

Version 9.0 also includes updated versions of GSS*CGI graphics drivers with enhanced configuration capabilities.

Other New Features

New Peeks and Pokes, new and improved utility programs, and improved installation procedures are

Denmark to Host APL90

Denmark will be the site of APL90, the annual conference of APL users from around the world. The meeting will be held August 13-17, 1990, at the Marienlyst Hotel in the seaside town of Helsingør (Elsinore), 25 miles north of Copenhagen.

The theme of the conference is "For the Future." Presentations will focus on how APL has contributed to the development of new ideas, concepts and techniques in the past, and how it will remain an excellent tool for information management into the future.

The technical program will include special presentations, papers, a software exchange, vendor forums, and exhibits. In addition, poster sessions will be introduced at APL90, allowing speakers to present their work at small booths to passers-by.

The conference committee invites APL users to submit program suggestions or papers for presentation at APL90. Possible topics include database technology, image processing, neural networks, artificial intelligence, expert systems, professional tools,

how APL is used in business and education, and other topics related to trends in APL technology, application, and education.

Abstracts of proposed papers should be submitted *immediately*. Complete drafts of papers must be received by the program committee by November 30, 1989. The submitted papers will be reviewed and presenters will be notified by January 31, 1990 if their papers have been accepted.

For more information, or to submit manuscripts, contact:

APL90 Conference
c/o Kim S. Andreasen
Snerlevej 3, DK-3000
Helsingør, Denmark
STSC MAILBOX CODE:
APL90
FAX: +45 42 84 73 16

Or send manuscripts to:

APL90
Attn: Thomas J. Pritchard
STSC, Inc.
2115 East Jefferson St.
Rockville, MD 20852
FAX: 301-984-5094

among the other features that make APL★PLUS PC Version 9.0 the best ever.

For a complete enhancements summary, or to order, call STSC toll-free at 800-592-0050. In Maryland call 301-984-5123.

Outside the U.S., contact your local dealer or call STSC at 301-984-5412 for the name of the dealer nearest you.

By Popular Demand! APL★PLUS Training in New York City Added to Course Schedule

In response to the requests of many APL users, STSC's Educational Services division will sponsor three special APL courses in New York City this fall.

The four-day training course, "Introduction to APL," will be offered October 23-26. Although the regular fee for this course is \$250 per day, the New York City course will be offered at a special one-time rate of \$800 for the full course — a savings of 20 percent!

Two special workshops on the APL★PLUS II System for the 80386 also will be offered. "Introduction to Nested Arrays" will be held November 2, and "Introduction to $\square$ NA for the APL★PLUS II System" will be offered on November 3. The cost for each course is \$250.

Other courses to be held at STSC's Corporate Training Center in Rockville, Maryland, are:

Introduction to APL

Four days, \$250/day
January 22-25, 1990

Intermediate APL

Four days, \$250/day
February 5-8, 1990

The following one-day workshops also will be offered in Rockville. The cost of each workshop is \$250.

Getting Started with the APL★PLUS II System

November 6, 1989 and February 26, 1990

Introduction to Nested Arrays
November 7, 1989 and February 27, 1990

Introduction to $\square$ NA for the APL★PLUS II System
November 8, 1989 and February 28, 1990

How to Write More Efficient APL Code
November 9, 1989 and February 9, 1990

Full-Screen Input and Menus - $\square$ WIN
February 22, 1990

Spreadsheet Manager and Data Import/Export Methods
February 23, 1990

Special Offer for On-Site Sessions

In addition to registering for scheduled courses, an increasing number of APL★PLUS users are choosing to have STSC conduct standard courses and workshops, as well as customized on-site training sessions, at their own facilities. On-site courses allow us to customize APL training to your company's specific applications, while saving attendees' time and travel expenses.

The regular cost of on-site training is \$1500 per day, plus the expenses of the instructor, for 12-15 participants. If you schedule your on-site course by **November 30**, the special rate is \$1200/day plus the instructor's expenses.

To schedule your on-site course, or for more information on any of STSC's APL training courses and workshops, contact Bonnie Hardy at 301-984-5131.

APL Press Offers 50% Discount on Selected Publications

To celebrate STSC's 20 years of APL excellence, and to enable us to close out our stock of certain publications, APL Press is having a sale!

Place your order by November 20, 1989, and receive a 50% discount on the publications listed on the enclosed order form!

Quantities are limited, so order now! Orders will be filled on a first come, first served basis.

APL★PLUS News is published by STSC, Inc., and is distributed to users of APL★PLUS System products who are enrolled in an STSC software support program.

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Treasure Chest

By Ralph L. Fox

Of Lesser Interest

One of the most tantalizing automobile sales promotion techniques is to offer financing at an extremely low interest rate. Usually, the term is far too short for you to afford, because of a correspondingly high monthly payment. Here is how you can use the *FINANCE* workspace from the APL*PLUS PC Financial and Statistical Library to match wits with these promotional schemes.

Suppose you want to finance \$10,000 and are offered 2.9% financing for 24 months. Use the *LEVPAY* ("level payment loan") function to calculate your monthly interest and principal streams, and your constant monthly payment:

```
AMT←10000 ♦ LOWIR←.029 ♦ NMON1←24 ♦ MPER←1
INT1←2 RND LEVPAY MPER,AMT,NMON1,LOWIR
PRIN1←2 RND Z1 ♦ +PAY1←1↑INT1+PRIN1
429.37
```

In this example, model periodicity of 1 means monthly. *LEVPAY* returns interest as an explicit result and assigns principal to the global variable *Z1*. Using *2 RND* will round the right argument to two decimal places. The total monthly payment will be \$429.37.

Suppose you decide that you can only afford \$275 per month for this purchase, and that you will borrow the difference for 24 months at some short-term rate, then obtain a new loan at the end of the 24 months to pay off the accumulated borrowings, at a long-term rate. The short-term rate might vary from 6% (if you borrow from your own savings account) to 21% (if you borrow from a retail revolving charge account).

Set the amount you can afford, the amount you must borrow each month, and the short-term interest rate (18% in this example). Then use the *ANNUITY* function to determine your total accumulated borrowings (\$4,420.16) during the first 24 months:

```
STIR←.18 ♦ AFFORD←275 ♦ +BOR←PAY1-AFFORD
154.37
+TOTBOR←2 RND ANNUITY 1,MPER,BOR,NMON1,STIR
4420.16
```

Capture in *INT1A* the additional first-stage interest from the monthly borrowings:

```
+INT1A←TOTBOR-NMON1×BOR
715.28
```

At the end of the first 24 months, you must figure out how long it will take to repay the accumulated borrowings with the monthly payment you can afford. Assume a long-term interest rate of 12% (from a personal line of credit, for example) and use the *DLEVPAY* ("derive level payment loan parameters") function. The 0 indicates that the number-of-periods parameter is to be derived:

```
LTIR←.12
+NMON2←1↑2↓DLEVPAY MPER,TOTBOR,0,LTIR,AFFORD
18
```

It now appears that the second stage can consist of another 18 months of affordable payments. Since 18 is a rounded result, calculate the payments exactly:

```
INT2←2 RND LEVPAY MPER,TOTBOR,NMON2,LTIR
PRIN2←2 RND Z1 ♦ +PAY2←1↑INT2+PRIN2
269.55
```

Continued on page 5

Thus, the original \$10,000 can be financed with 24 payments of \$275 and 18 payments of \$269.55. If you are curious as to an overall, equivalent annual interest rate, use the *IROR* ("internal rate of return") function as follows:

```
+EQUIVIR←(MPER,1) IROR AMT, -(NMON1,NMON2)/AFFORD,PAY2
0.07800881722
```

Thus, you have produced your own custom financing scheme, using a combination of 2.9%, 18%, and 12% interest rates, that is approximately equivalent to 7.8% annual interest. To see this, note that you have ended up paying a total interest amount of

```
+ /INT1,INT1A,INT2
1451.95
```

whereas a level payment loan (if you could get one) at the equivalent interest rate would require the following total interest:

```
+ /2 RND LEVPAY MPER,AMT, (NMON1+NMON2),EQUIVIR
1459.45
```

STSC Celebrates 20 Years of APL Excellence at APL89

STSC and its APL★PLUS products had a high profile at APL89, the annual conference of APL professionals from around the world. The conference was held from August 7 to 10 in New York City. Approximately 500 APL users participated.

Nearly a quarter of the conference participants crowded into STSC's Vendor Forum, where company technical and marketing staff discussed recent developments and future plans for STSC's line of APL★PLUS products.

Another record crowd of more than 250 APL users helped celebrate STSC's 20th anniversary at a cocktail party hosted by STSC on August 6. "Twenty Years of APL Excellence" was the theme of the celebration, which marked STSC's 20th year as a provider of quality APL products and services. Champagne, a birthday cake, and "sparkler" flashlights contributed to the festive mood.

STSC also was one of the main exhibitors at APL89. The STSC booth was shared by Uniware, STSC's French distributor of APL★PLUS products. Conference attendees were particularly excited by the Numeric Editor, one of the major new features in Version 2.0 of the APL★PLUS II System for the 80386. This popular feature also has been incorporated in Version 9.0 of the APL★PLUS System for the PC, available this November. (See article on page 1.)

Plans already are under way for STSC's participation in APL90, to be held August 13-17, 1990, in Helsingør, Denmark. (See article on page 2.) Watch future issues of APL★PLUS News for details.



"Sparkler" flashlights contributed to the festive mood as STSC celebrated 20 years of APL excellence at APL89 in New York City.

Answers from the Experts

This issue's "Answers from the Experts" column takes the form of a tutorial on using networks with APL★PLUS PC and APL★PLUS II. The "Q & A" format will return in the next newsletter. Please let us know if you have questions you would like to see answered in this publication. We welcome your input!

Using a Network with APL★PLUS PC and APL★PLUS II

By Steven Promisel, Manager, Applications Consulting

Editor's Note: This article is the first in a series on how to get the most out of STSC's APL★PLUS products. Topics will be drawn from the experiences of STSC's Applications Consulting Group in finding solutions for many different clients with varying situations and needs.

For purposes of illustration, this article uses commands typical of Novell networks. Commands may be slightly different on other networks; consult your network manuals for exact function names. The author presumes some basic knowledge of network operations.

Starting APL★PLUS on a Network

If you want to use APL★PLUS PC or APL★PLUS II on a network, your first and largest concern is whether the network is already installed and running. Network installation can be very complex, from selecting and purchasing the proper hardware and software, to meeting building codes for cabling. Professional help for both installation and cabling is highly recommended if you are installing your first network.

What's different about running APL★PLUS on a network? First, the functions required to run most

networks use additional memory — the memory you formerly had for work space. Network software packages can use up to 150K of RAM on each local machine! If you use APL★PLUS PC, you should consider using the virtual workspace (VWS) to help compensate for the loss of workspace taken up by the network software memory. If you use the VWS on a hard disk, make sure you set it up to be the local hard disk, rather than the network server.

Next, you should run N=1 on the command line if you want APL★PLUS PC or APL★PLUS II to be aware of the network. People often call STSC's Technical Support HelpLine to ask if DOS SHARE is required to use N=1. To assure the success of APL file operations, it is best to run SHARE on each local machine. Failure to run SHARE in this way may result in messages like FILE ACCESS ERROR and HOST ACCESS ERROR. If the network does not need SHARE, N=1 is still required to force sharing.

Sharing Files

Once APL★PLUS is running on a network, you must consider the same issues you would if you were running on a mainframe or minicomputer. If you want more than one

person to have simultaneous access to a component file, you must use the □FHOLD function properly. For information on how to do this, see the chapter on "Using Files" in your *User's Manual*.

An important point to remember is that you will be using the □FSTIE function rather than the □FTIE function to tie files. When you duplicate or compress component files on a network, use □FTIE before using □FDUP. You could use an error handler like *ELXHANDLER* to handle *FILE TIED* errors if you compress component files as part of system maintenance.

Finally, check to make sure that the network administrator gives proper file access to users. If you routinely create, delete, or rename files as part of your application, you must make sure that the correct access is set for all users of your software.

Printing on Networks

Often, you will need to use a local printer attached to your computer. At other times, you will want to use a printer attached to the network. When you use □ARB IN, the

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Answers

Continued from page 6

default is usually output to your local printer.

You can direct output to a Novell network printer by running the Novell CAPTURE function. All subsequent output will go to a file until you run the Novell ENDCAP function. Use `□CMD` to run these functions before and after you start output using `□ARB IN`.

You should also familiarize yourself with one of the CAPTURE options called TIMEOUT. This option specifies the number of seconds to wait for output once it is sent to the printer. If your program formats and prints one page at a time through `□ARB IN`, you may want to assign a high value, such as 30 seconds, to TIMEOUT. Otherwise, the format of your output could be affected by the font changes and graphics output of other network printer users.

Finally, if you want to download APL characters to your printer, you should first run CAPTURE with the NOTABS option. For more information, refer to your network reference manual.

Network Consulting Available

If you need help with networks or any other application using APL★PLUS products, the STSC Applications Consulting Group provides consulting and programming services for projects of all sizes. For more information, contact Steven Promisel, Manager of Applications Consulting, at 301-984-5329 (FAX 301-984-5290).



Staff Notes

Stephanie Crognale has been promoted to APL★PLUS System Sales Manager. In this capacity, she heads the STSC team responsible for sales of all APL★PLUS products. Stephanie, who joined STSC in early 1987, has held various positions, including Telesales Manager and APL Mainframe sales representative.

Paul Clements has joined the telesales group, where he is responsible for selling the full line of APL★PLUS micro products. For the past year, Paul has been a member of STSC's Client Satisfaction team, where he provided assistance to clients who called the Technical Support HelpLine.

Did You Know That

. . . STATGRAPHICS®, STSC's popular PC-based statistical graphics system, is written in APL★PLUS?

STATGRAPHICS is designed for statisticians, quality-control engineers, business analysts, market researchers, medical and health professionals, and others with a need for comprehensive data analysis. It contains over 250 statistical procedures and a broad range of fully integrated color graphics.

Best of all, you can use the APL★PLUS PC System with STATGRAPHICS to perform ad hoc analyses or add customized procedures to the package.

For more information, call:

1-800-592-0050

In Maryland, 301-984-5123

APL★PLUS Supports New IBM Mainframe Operating Systems

IBM recently announced that it will no longer support VS APL. This action has left a number of mainframe users concerned because they will no longer be able to run applications such as ADRS II (A Departmental Reporting System) on the latest VM operating systems. These systems include VM/SP 6.0, VM/IS 6.0, and VM/XA SP 1.0 and 2.0.

What many mainframe users may not know is that all VS APL workspaces will run under STSC's APL★PLUS System for the Mainframe with no modifications. APL★PLUS for the Mainframe sup-

ports — and will continue to support — new VM operating systems.

"APL★PLUS Mainframe is a viable replacement option, not just a short-term solution, for VS APL users who don't want to spend the time and effort to convert to APL2," says APL★PLUS product manager James McDermott.

Switching to APL2 (IBM's current mainframe product and successor to VS APL) requires a great deal of conversion work, while switching to APL★PLUS "is as simple as replacing the program on your mainframe," McDermott notes. "And

APL★PLUS Mainframe has all the functionality of VS APL, plus many other features and enhancements."

APL★PLUS Mainframe offers many benefits over VS APL, such as efficient report formatting and an integrated APL file system. "Users will also find APL★PLUS to be a friendlier and more productive environment in which to work," McDermott says.

For more information, call STSC at 301-984-5117. Outside the U.S., call 301-984-5412 for the name of the dealer nearest you.

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<i>APL in Exposition</i> , Iverson (AP166). Illustrates use of APL for exposition in teaching of various topics, including elementary algebra, geometry, statistics, finite differences, calculus, logic, sets, and electric circuits.	_____	\$3.50	\$1.75	_____
<i>APL Quote-Quad: The Early Years</i> (AP167). An APL collector's item containing entire first three volumes (April 1968 through June 1972). Includes Bob Smith's "Problem Section," APL algorithms, bibliographies, and a collection of articles.	_____	\$35.00	\$17.50	_____
<i>The Four Cube Problem</i> , McDonnell (AP173). Presents two variations of computer solutions to a cube puzzle. Illustrates how BASIC and APL give different shapes to our perceptions of how to solve problems.	_____	\$3.50	\$1.75	_____
<i>APL Self-Study Course</i> , Iverson. Beginning course in APL programming, consisting of <i>Introduction to APL</i> textbook (AP169), <i>APL Language</i> reference manual (AP170), diskette (AP171), and pocket reference card (AP172). Emphasizes learning by experimentation on the computer and effective use of the reference manual. Text quickly introduces fundamentals of APL.	_____			
<i>Introduction to APL</i> (AP169) textbook	_____	\$18.00	\$9.00	_____
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A four-book series covering the central topics of elementary mathematics. APL is used to represent mathematical notation throughout. Algorithmic treatment presents essentials of computer programming in mathematical light.				
<i>Algebra: An Algorithmic Treatment</i> , Iverson (AP160)	_____	\$15.00	\$7.50	_____
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